

Amendments to the Claims:

Please cancel claims 1 – 10 without prejudice or disclaimer of the subject matter contained therein and add the following new claims to the application.

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1 – 10 (canceled)

11. (new) An electromagnetic ultrasonic probe for coupling-media-free generation and reception of ultrasonic waves in the form of linearly polarized transverse waves in a workpiece, respectively from a workpiece, includes

a unit which generates the ultrasonic waves inside the workpiece and which is provided with a transmission coil arrangement, to which a high-frequency voltage can be applied to generate a high-frequency magnetic field, and a premagnetizing unit to generate a quasi-static magnetic field superimposing the high-frequency magnetic field in the workpiece; and

an ultrasonic waves reception unit providing a reception coil arrangement which can be connected to an evaluation unit, with the transmission coil arrangement and the reception coil arrangement being disposed torus-shaped at least on one partially toroidally designed magnetic core, which is provided with two front ends which can be turned to face the workpiece and via which the high-frequency magnetic fields can be coupled into, respectively coupled out of, the workpiece; and wherein

the premagnetizing unit can be contacted directly or indirectly with the workpiece via a contact area, and

the at least one partially torodially designed magnetic core is disposed laterally next to the contact area of the premagnetizing unit in such a manner that the premagnetizing unit can project over the partially toroidally designed magnetic core perpendicular to the contact area.

12. (new) The electromagnetic ultrasonic probe according to claim 11, wherein the premagnetizing unit generates a quasi-static magnetic field whose magnetic field lines pass through the contact area largely perpendicular thereto.

13. (new) The electromagnetic ultrasonic probe according to claim 11, wherein the premagnetizing unit provides at least one permanent magnets whose magnetic field lines can be concentrated by means of a concentrator on the contact area.

14. (new) The electromagnetic ultrasonic probe according to claim 13, wherein the at least one permanent magnet is at least partly enclosed by a magnetic workpiece which bundles the magnetic field lines on the concentrator.

15. (new) The electromagnetic ultrasonic probe according to claim 13, wherein the concentrator is made of a magnetic material and is provided with two surfaces opposite each other, of which one is larger than the other and the smaller surface determines the size of the contact area and the larger surface is connected to the magnetic workpiece.

16. (new) The electromagnetic ultrasonic probe according to claim 14, wherein the concentrator is made of a soft magnetic material and is provided with two surfaces opposite each other, of which one is larger than the other and the smaller surface determines the size of the contact area and the larger surface is connected to the soft magnetic workpiece.

17. (new) The electromagnetic ultrasonic probe according to claim 15, wherein the concentrator is provided with an electrically nonconducting material in which ferromagnetic particles are embedded matrix-like, or the concentrator comprises a stack-like arrangement of single metal plates.

18. (new) The electromagnetic ultrasonic probe according to claim 16, wherein the concentrator is provided with an electrically nonconducting material in which ferromagnetic particles are embedded matrix-like, or the concentrator comprises a stack-like arrangement of single metal plates.

19. (new) The electromagnetic ultrasonic probe according to claim 11, wherein the at least one partially toroidally designed magnetic core has a partially toroidal plane which forms with the contact area an angle α with $0^\circ < \alpha < 90^\circ$, and the front ends of the partially toroidally designed magnetic core form an angle α with the partially toroidal plane.

20. (new) The electromagnetic ultrasonic probe according to claim 11, wherein at least two partially torodially designed magnetic cores are provided of which one provides the transmission coil arrangement and the other the reception coil

arrangement, and the partially toroidally designed magnetic cores are disposed relative to the premagnetizing unit on opposite sides.

21. (new) The electromagnetic ultrasonic probe according to claim 20, wherein the partially toroidally designed magnetic cores are disposed axially symmetrically to a symmetrical axis passing through the premagnetizing unit, and wherein the partially toroidal planes of the partially toroidally designed magnetic cores each form an angle a with the contact area.

22. (new) The electromagnetic ultrasonic probe according to claim 11, wherein the at least one partially torodially designed magnetic core is designed as a toroidal tape core.

23. (new) The electromagnetic ultrasonic probe according to claim 13, wherein the premagnetizing unit provides two permanent magnets.

24. (new) The elecetromagnetic ultrasonic probe according to claim 19, wherein $30^\circ < a < 60^\circ$.